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Subject: Draft Scoping Outline for Donlin Gold Meeting
Attachments: EPA Scoping Comments for the Donlin Gold Project.docx

Greetings everyone!

Thanks for providing me with you comments. Please see below that I have captured your comments adequately. If you have any additional comments, please provide them to me by Noon, Feb 6 (AK Time). Thanks.

For the Cooperating Agency Scoping Meeting, I believe each agency will only have 10 minutes to provide comments, so I will be touching on a few of the comments identified in the document. However, this document will serve as the outline for our formal Scoping comments due to the Corps by March 29.

(See attached file: EPA Scoping Comments for the Donlin Gold Project.docx)

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Scoping Comments for the Donlin Gold Project

Outline

Purpose and Need

- Reflect broader public interest and need, not just that of the applicant and the Corps.

Alternatives

<u>Criteria Development</u>

- Identify criteria use to (1) develop alternatives (2) eliminate alternatives from consideration (3) identify the environmentally preferred alternative (4) identify the least environmentally damaging practicable alternative (LEDPA).

<u>Range of Reasonable Alternatives</u>

- Alternative energy sources, pipeline routes, road alignments, port facility locations, mine facility locations, etc.;
- Compare environmental impacts between the proposed project and alternatives.

<u>Cost Benefit Analysis</u>

- For each alternative carried forward, develop a general life cycle economic cost analysis;
- Practicability determination under CWA §404(b)(1) Guidelines.

Preferred Alternative

- Concurrent review and analysis under NEPA and CWA §404;
- Provide a draft Clean Water Act Section 404(b)(1) compliance determination in the Draft EIS as an Appendix;
- Least Environmentally Damaging Practicable Alternative (LEDPA) identified as the preferred alternative.

Financial Assurance – Reclamation, Post-Closure Monitoring, Long-term Management

- Disclose the appropriate funding amount and analyze its adequacy for long-term water management;
- Disclose detailed information about the process used to develop and secure financial assurance, including costs, calculations, models, and assumptions;
- Estimates of cost for site reclamation, monitoring, long term management, maintenance, contingencies, etc.
- Identify funding mechanisms or options (e.g. bonding, trust, etc.) to ensure the costs of post closure reclamation, monitoring and mitigation, long term water management will be covered as long as needed and if the company fails to meet its requirements.

Mine Failure Scenarios

- Evaluate the risks and environmental effects (short- and long-term) associated with an accidental failure of mine facilities.
  - Tailings Storage Facility: integrity of the dam and liner are compromised – characterize the discharges into surface/groundwater and post-spill water quality;
  - Waste Rock Facility;
  - Open Pit Lake; overflow, discharges into surface/groundwater
  - Fuel Containers; spills to surface/groundwater
  - Fuel Barges; spills into the Kuskokwim River
  - Fuel Trucks; spills to surface/groundwater
- Identify prevention, planning, management, and response measures that would be implemented to address accidental failure of the mine facilities.

Geology and Geochemistry

<u>Site Analogs</u>

- Discuss the regional gold deposits in Alaska as site analogs for evaluating the project geology and geochemistry;
- Characterize the mineralization of other gold mines in Alaska, e.g., Fort Knox;
- Identify and describe other gold mining claims, and activities in the region;
- Site analogs are important in evaluating acid mine drainage and metal leaching potential;
- Site analogs can be used to predict future site conditions

<u>Terrain Mapping</u>

- Recommend applying this method to identify, classify, and map soil, rock, and geomorphic features using stereoscopic analysis of aerial photographs;
- Identify areas of potential hazards, such as erosion, slope instability, ground freezing, and thawing of permafrost, etc. for the access road and pipeline.

Acid Rock Drainage/Metal Leaching

- Characterize the waste rock for ARD/metal leaching potential;
- Use site analogs for comparison of ARD/metal leaching to other minerized areas;
- Develop detailed ARD/metal leaching testing and monitoring plan during operations;
- Develop a corrective action plan to address accidental releases to surface/groundwater.

<u>Infiltration/Seepage</u>

- Evaluate and model potential rates and volumes of infiltration/seepage from mining facilities (WRF, TSF, Open Pit, etc.) into groundwater and surface waters;
- Identify the constituents, pollutants, metals, etc. in the seepage stream;

- Evaluate how unintended and/or unmitigated releases of seepage from facilities would affect surface/groundwater quality;
- Evaluate mitigation measures to minimized infiltration/seepage;
- Evaluate the use of a geomembrane liner in the WRF.

Air Quality

Air Impact Assessment

- Develop a framework for comparing the baseline air quality to air quality during the construction and operation of the proposed project;
- Evaluate winter and summer conditions on air quality;
- Physical, climatological, meterological, and visibility characteristics of project area are important to understanding air pollution and transport – Do these data meet EPA PSD collection requirements?; (Note: EPA has expressed concern with the quality of the data to Donlin and AK DEC.);
- Existing baseline air quality data – location of monitoring station, method and frequency of monitoring, criteria air pollutants (e.g. SO_2, NO_2, CO, O_3, PM_{10}, $PM_{2.5}$. and Pb), measured, maximum, minimum, and average concentrations – has this data been validated?;
- Discuss surrounding topography, pollutant transport and dispersion, and potential secondary formation of air pollutants;
- Provide maps that show the locations and terrain elevation of all past and present air quality and meteorological data collection stations;
- Identify and discuss nearby source emissions that could have a cumulative impact;
- Discuss project area designations (i.e, attainment, non-attainment or unclassified);
- Identify any nearby sensitive receptors (i.e., schools, hospitals, churches…etc.);
- Identify any natural resources, ecosystems, and human communities that may be adversely affected by any additional air emissions;
- Identify and discuss applicable air quality laws, regulations, standards, and guidance. Does this data meeting the National Ambient Air Quality Standards (NAAQS) and/or State standards, increments and thresholds? Provide date(s) for any monitoring data that indicates a violation;
- Identify and discuss required air permits;
- Include a plot plan/facility layout showing ambient air boundary, location of all emission sources, buildings, structures, north arrow and scale;
- Provide emission inventories of all project combustion and non-combustion, mobile and stationary sources. This would include sources of emissions during the construction and operation phases, and the total quantity of air pollutants emitted (e.g., diesel engines, turbines, mobile sources, aircraft, marine vessels and river barges, fugitive, pipeline, road dust…etc.);

- Provide and discuss the calculation methodologies and assumptions of all emission rates, both short term (g/sec, lbs/hr, lbs/dy and long term (tns/yr). This would include operating hours, fuels, heat input…etc.);
- Provide stack parameters for point sources (height, temperature, exit velocity and diameter), and dimensions for area and volume sources;
- Conduct and provide a Good Engineering Practice (GEP) stack height analysis i.e., Building Profile Input Program for PRIME (BPIPRM);
- Discuss and provide a map showing the project definition of ambient air;
- Discuss and provide a map showing project modeling domain. This would include ambient air boundary, near field, far field, sensitive receptor locations, map scale and north arrow;
- Summarize and discuss the representativeness of the measured air quality data used for background levels;
- Identify the representative meteorological data that will be used with EPA guideline or non-guideline model(s) to predict project concentration impacts during construction, start-up/shutdown, and operation phases;
- Identify the EPA guideline or non-guideline that will be used to predict project compliance with air standards, increments, and *de minimus* levels. In addition, identify any options selected that are not regulatory defaults. (Note: If a non-guideline model is proposed to predict concentrations in complex terrain, please inform EPA as soon as possible. This approach will require a Section 3.2.2.e demonstration pursuant to Appendix W in 40 CFR Part 51);
- Conduct an Air Quality Related Value (AQRV) analysis consistent with BLM requirements;
- Address secondary formation of O_3 and $PM_{2.5}$ (i.e., sulfates, nitrates and VOCs). The latter three should be included with primary $PM_{2.5}$ to determine compliance with air standards;
- Provides tables summarizing the data and model results, and graphics/isopleths to display the locations of predicted concentration (The above applies to both a project only analysis and a cumulative analysis;
- There should be a reference sections for sources of assumptions, information and data;
- Identify the type of modelling used to predict changes in ambient air quality associated with the propose action and alternatives;
- Develop a greenhouse gas emission inventory that includes baseline emissions, project related emissions, and emissions from reasonably foreseeable activities and projects.

Class I Designation

- Identify Class I and Class II designated sensitive areas in Alaska and potential impacts under the Clean Air Act (CAA) Prevention of Significant Deterioration (PSD) program associated with this project.

Gas Flaring

- Identify sources of potential gas flaring and describe the gas flaring system for the pipeline;
- Evaluate the air emissions associated with the source of gas flaring.

Fugitive Dust (Particulate Matter)

- Evaluate magnitude and significance of fugitive dust emissions (e.g., ore processing operations, gravel roads and pads, construction activites, etc.) and impacts on human health and sensitive populations (e.g., children and elderly);
- Provide monitoring of fugitive dust during construction and operations;
- Identify mitigation measures, such as wetting the source material, installing barriers to prevent dust from leaving the source area, and halting operations during high wind events.

Hazardous Air Pollutants (Air Toxics)

- Identify potential hazardous air pollutants (such as mercury, cyanide, arsenic, cadmium, etc.) and potential sources and estimate emission volumes;
- How does the volumes compare to the National Emissions Standards for Hazardous Air Pollutants (NESHAP)?

Mercury (Air)

- December 2010, EPA promulgated NESHAP associated with gold ore processing and production facilities – mercury regulated under final rule;
- Sources regulated – ore pretreatment process, carbon process with and without mercury retorts, and non-carbon concentrate process;

Affected Source	Existing Sources	New Sources	Units
Ore pretreatment processes	127	84	lb/million tons of ore
Carbon processes with mercury retorts	2.2	0.8	lb/ton of concentrate
Carbon processes without mercury retorts	0.17	0.14	lb/ton of concentrate
Non-carbon concentrate processes	0.2	0.1	lb/ton of concentrate

- Identify control technology that would be implemented to meet emission standards;
- Identify monitoring and mercury emission testing at emission stacks.

Point Source Emissions to the Atmosphere

- State of the art mercury abatement systems are proposed for the mill, with mercury removed from the gas stream via activated carbon;
- How efficient is this mercury capture system expected to be and what is the expected magnitude of mercury releases from the mill exhaust stack?
- Information on the speciation of this mercury is important to identify if releases will be deposited locally or enter the global pool.

Nonpoint Source Emissions

- It has been shown in numerous studies that mercury associated with solid material or dissolved in an aqueous solution can volatize directly to the atmosphere. Often only a relatively small percent of the solid/liquid associated mercury volatizes; however if the solid or solution concentrations are high (as they often are at mines in geologically enriched mercury areas) and/or cover a large surface area (also often the case at major mine operations), then there is potential for significant amounts of mercury to be released from nonpoint sources. Limited amounts of data are available on these releases from mines, but previous studies from Nevada gold mine areas indicate that surface volatilization can range from 10 to over 100 kg/year per mine—depending on many different mine characteristics (study details available upon request);
- In order to have a full understanding of mercury releases from a mine operation, these nonpoint sources will need to be quantified. Prior to the development of the mine, these emissions can be estimated based on anticipated mercury concentrations of the different mine surfaces. These estimates should be included in the EIS;
- Surface-air fluxes are not unique to mining areas. They can also occur from natural landscapes—with landscapes containing geologically enriched mercury having larger emissions. To help contextualize the emissions from a proposed mine, there may be utility in first quantifying the baseline mercury emissions from the natural landscape;
- Apart from volatilization, particulate bound mercury can be mobilized through wind erosion, which may be deposited locally. The potential for wind erosion of mercury enriched particles should be discussed;
- The potential for this mercury to be deposited to local wetlands and methylated should be discussed;
- Conduct a mercury assessment and bioacculation study for this project.

Mercury Methylation (Water)

- The impact of mercury on aquatic systems is dependent on the amount that is methylated. Mercury methylation requires—inorganic mercury and methylating bacteria. The predominate (though not exclusive) methylators of mercury are sulfate reducing bacteria (SRB). SRB require -- anoxic conditions, sulfate, and an organic carbon source. Therefore, any landscape alterations that affect the activity of SRB can have a large effect on methylmercury (MeHg) concentrations in aquatic biota. As such, in evaluating the impacts of the proposed mine, it is not adequate to look at just releases of inorganic Hg. While this is important, information on how the mining activity influences the methylation potential of mercury must also be included;
- In 2007, measurements of MeHg were added to the Hg baseline study. These measurements focused on stream/river sediments. While measuring sediments may have the benefit of being less temporally variable than water; the water measurements may

more representative of the MeHg available for accumulation in the foodweb. It is likely that Hg methylation in the area is mainly occurring in wetlands. The export of MeHg from these wetlands is likely in the dissolved phase. Therefore, it may be the case that sediment MeHg concentrations are not representative of water MeHg concentrations. The export of MeHg from wetlands is likely highly temporally variable and would be dependent on hydrological connectivity between the wetlands and streams. Therefore, perhaps the most efficient way to identify the baseline methylation potential of the ecosystem is to collect measurements directly from the wetlands;

- Numerous studies have shown that MeHg concentrations in water have large seasonal variability—with the highest concentrations in the late summer/early fall. Over the winter MeHg typically decreases, resulting in lower spring time concentrations. As such, to understand the maximum amount of MeHg being produced, measurements would need to be made in the late summer or early fall;
- The EIS should acknowledge the potential for methylation to occur downstream from the mine site and the role that export of dissolved organic carbon (DOC), sulfate, and inorganic Hg may have on facilitating downstream methylation.

Cumulative Impacts

- Releases of mercury or MeHg associated with the mine need to be contextualized with the releases from Red Devil mine upstream to understand any cumulative impacts of releases.

Water Resources

303(d) Listed Waterbodies

- Identify and evaluate impacts to listed waterbodies in and adjacent to the project area.

Source Water Protection

- Identify public drinking water supplies and their sources, such as streams, lakes, rivers, springs, aquifers, etc within the project area;
- Identify activities that could potentially affects source water areas;
- Identify potential contaminants that may impact source waters;
- Identify measures to protect source water areas;
- Review State of Alaska database for reporting source water locations (ADNR WELTS database).

Storm Water Management

- Project should meet the requirements of ADEC's APDES permit program, including development of SWPPPs, reporting, and monitoring;
- Identify specific BMPs, erosion and sediment control measures to minimize impacts.

Anti-Degradation Provisions

- Applies to waterbodies where water quality standards are being achieved;
- Describe how anti-degradation provisions would be achieved.

Water Body Crossings

- Characterize the stream/river crossing for the proposed gravel access road and pipeline;
- Identify the types of construction or structure that would be implemented for specific types of water body crossings.

Water Withdrawal

- Estimate the volume of water that would be required for each component of project construction – mine, natural gas pipeline, and facilities, such as ports, airstrips, temporary and permanent gravel roads and pads, etc. as well as the operation of the mine, port, natural gas pipeline, etc.;
- Identify the location of surface and groundwater sources, and volume of water required for project construction and operation;
- Characterize these sources in terms of the quantity of water available, presence/absence of resident and/or anadromous fish species, depths of lakes/ponds, etc.;
- Identifying mitigation measures, such as water withdrawal rates, timing of water withdrawal, and screening to avoid impacts to fish, and monitoring to ensure fisheries resources are protected.

Mine Water Management

- Provide characterization of the water source(s) (e.g., surface water, ground water, snow, precipitation, run off, etc.);
- Detailed water balance evaluation at each of the facilities during he full mining lifecycle– water flow patterns for surface water, water use, land application and discharge systems, pond storage and discharge, etc. during steady state and peak flow conditions.

Mine Water Treatment

- Describe in detail the water treatment systems, type of filtration and removal system – active or passive, type of pollutants to be removed;
- Provide a detailed schematic diagram depicting treatment schemes through mine construction, start up, operations, closure, reclamation and post-closure and monitoring;
- Discuss effectiveness during seasonal and high flow events;

- Characterize the chemical contaminants and temperature.

Hydrostatic Testing (Pipeline)

- Evaluate impacts associated with the hydrostatic testing of the natural gas pipeline
- Identify location of water sources and withdrawal rates;
- Identify location of where hydrostatic test water would be discharged – land and/or surface waters;
- Identify the types of chemical additives required for winter hydrostatic testing, such as freeze depressants and/or untreated, heated water may be mixed with the test water;
- How would these chemicals be treated and properly disposed;
- Evaluate environmental impacts associated with chemical and thermal impacts.

Pipeline Horizontal Directional Drilling (HDD)

- HDD requires the use of drilling muds (bentonite clay slurry) to install the pipeline underneath the water body, which mixes with soil cuttings;
- Develop a Drilling Mud Plan to manage, store, transport, and properly dispose of drilling muds, cuttings, and additives.

Wetlands, Aquatic Resources, and Riparian Areas

- Evaluate options to avoid, minimize, and compensate for impacts to wetlands;
- Integrate NEPA process with the Clean Water Act Section 404 permitting process, such as including a Draft 404(b)(1) analysis in the Draft EIS as an Appendix;
- Characterize habitat types and quantify areas of wetlands and aquatic resources within the project area – include information on aerial photographs;
- For the proposed natural gas pipeline, jurisdictional waters should be mapped using aerial photo interpretation within a minimum 1,000 feet corridor. Field delineation of wetlands should be conducted within a minimum 300-ft wide corridor.

<u>Function and Condition Assessment</u>

- Identify the condition and functional assessment methodology to evaluate the project wetlands, riparian areas, drainages, and other aquatic resources within the project area (permanent and temporary impacts);
- Conduct a functional assessment for Anaconda Creek (TSF) and American Creek (WRF).

<u>Compensatory Mitigation</u>

- EPA/Corps Compensatory Mitigation for Losses of Aquatic Resources, Final Rule;
- To compensate for the unavoidable impacts to wetlands, identify the appropriate compensatory mitigation type – permittee responsible, mitigation banks, in-lieu fee programs, etc.;

- Compensatory mitigation must be based on the functional assessment of wetlands and aquatic resources and replacement of those functions lost.

Kuskokwim River

- Conduct a geomorphology study using modelling techniques;
- Evaluate the historic erosion rates and quantify the loss of river bank along the reach of the river between Bethel and the proposed Jungjuk port site;
- Using modelling techniques, evaluate potential future bank erosion resulting from increased river barge traffic and wakes;
- Evaluate the open water season historic water levels and depths along the Kuskokim River between Bethel and the proposed Jungjuk port site;
- Specify the size, weight, and draft limits for the proposed river barges;
- Evaluate the need for dredging and maintenance dredging, dredging locations, the area and depth to be dredged, and the quantity of material to be dredged along the river to support barge transport;
- Evaluate the carrying capacity of the Kuskokwim River to support barges, and commercial and subsistence boats, etc.;
- Provide baseline water quality data, identify monitoring locations;
- Identify existing and historic fish camps, cultural sites, etc.;
- Evaluate baseline population conditions of salmon and resident fish species;
- Identify fish distribution and abundance;
- Summarize contaminant levels in fish tissue samples by species and potential health risks.

Crooked Creek

- Provide baseline water quality data, identify monitoring locations;
- Evaluate baseline population conditions of salmon and resident fish species;
- Identify fish distribution and abundance;
- Summarize contaminant levels in fish tissue samples by species and potential health risks.

Marine Vessel Traffic

- Evaluate potential impacts associated with marine vessel traffic between West Coast Ports of Vancouver and Seattle to Dutch Harbor and Bethel to marine mammals, and threatened and endangered species.

Fuel Management and Response Planning

- The storage and management of petroleum products is regulated by EPA under 40 CFR Part 112.

- The applicant will be required to develop Spill Prevention Control and Countermeasures (SPCC) plans and Facility Response Plans (FRP) and submit these plans to EPA for review. The EIS should discuss the implementation of these plans;
- Identify and fully analyze the risks associated with potential spills and other emergency response scenarios;
- Identify impacts to area users, as well as any strategies employed to communicate risks or actual emergencies to those users.

Hazardous Materials Planning

- Identify projected hazardous waste types and volumes, and develop plans for proper handling, storage and disposal;
- Discuss whether any proposed underground injection control (UIC) well is proposed to handle hazardous waste material;
- Identify and evaluate hazardous material sites within the project area, such as the Red Devil Mine.

Invasive Species

Executive Order 13112 Invasive Species (February 3, 1999).

<u>Vegetation</u>

- Conduct an invasive non-indigenous plant study pre- and post- project construction.

<u>Ballast Water</u>

- Concerns that aquatic nuisance species may be transported and introduced into the Kuskokwim River and the marine and intertidal waters by cargo and fuel tankers and river barges;
- Non-indigenous species may compete with or prey upon native species of plants, fish, and wildlife, may carry diseases or parasites that affect native species, and may disrupt the aquatic environment and economy of affected nearshore area;
- EPA Vessel General Permit – discuss compliance with permit for requirements to self inspect, monitor, report, and maintain records regarding ballast water discharges;
- National Invasive Species Act (NISA) of 1996 provides for ballast water management to prevent the introduction and spread of nonindigenous aquatic species into the waters of the United States;
- Commitment to use commercial marine vessels and river barges that operate with a Ballast Water Management Plan;
- Commitment to use marine vessels and river barges that have onboard ballast water treatment systems that prevent invasive species into the Kuskokwim River.

<u>Construction Areas</u>

- Commitment to develop an invasive plant management plan to monitor and control non-indegenous plants, noxious weeds, and utilize native plants for reclamation of disturbed areas.

Permafrost and Vegetation

- Identify mitigation measures to avoid and minimize impacts to permafrost and vegetation resulting from the construction and operation of a buried pipeline;
- Evaluate surface disturbance activities to permafrost and vegetation resulting from placement of permanent and temporary gravel for roads, pads, work areas, airstrips, etc.
- Conduct permafrost and vegetation mapping study;
- Conduct a rare plant study.

Seismic and other Risks

- Conduct project specific seismic hazard study;
- Identify the seismically active fault areas in the project area;
- Evaluate the risks and describe how the active areas will be monitored and managed;

Blasting

- Identify project areas where blasting is being proposed and evaluate the impacts of noise to displacement and disruption of wildlife and local residents;
- Describe the blasting methods and how blasting would be controlled and mitigated;
- Quantify noise levels and their effects to local residents and wildlife;
- Commitment to develop a Blasting Management Plan.

Protected Species

<u>ESA and MMPA</u>

- Identify all listed species – endangered, threatened, and candidate species, within the project area;
- Describe the critical habitat for these species and their migratory range, breeding and feeding areas, etc.;
- Include the Biological Assessments and desciption of consultation outcomes with USFWS and NOAA;
- Federal actions should promote the recovery of declining populations of species.

Wildlife Resources

- Evaluate the distribution, abundance, productivity, and survival of wildlife resources – large mammals (e.g., moose, caribou, sheep, etc.), small mammals, raptors, migratory birds, etc.

Social-Cultural Impacts

Socioeconomic Impacts

- Evaluate impacts to families, communities, and cultures associated with transitioning from a subsistence economy to a cash economy;
- Evaluate post-mining scenario and the decline with the economy in the Region.

Accessibility of Traditional Use Areas

- Identify community traditional use areas for subsistence, harvesting, hunting and trapping, fishing, travelling, etc.;
- Describe the access limitations to these traditional use areas, their impacts to communities;
- Coordinate with the community on options for mitigating impacts associated with accessibility to tradtional use areas.

Compatibility of Traditional Use Areas

- Identify project activities that may conflict with traditional uses (e.g. barge traffic on Kuskokwim conflicts with subsistence fishing);
- Identify mitigation options for avoiding and minimizing impacts.

Traditional Knowledge

- Obtain and incorporate Traditional Knowledge into analysis of alternatives and mitigation measures;
- Identify TK gaps and conduct additional TK studies as necessary to identify concerns and impacts, including cumulative impacts. TK data gaps may include construction timing windows to avoid/minimize critical subsistence harvest activities and wildlife migration periods.

Climate Change and Greenhouse Gas (GHG) Emissions

- CEQ draft guidance on analyzing effects of GHG emissions and climate change (February 18, 2010);
- Evaluate future needs and capacity of the open pit mine and ancillary facilities, and the natural gas pipeline to adapt to project climate change effects;
- Establish reasonable spatial and temporal boundaries for this analysis;
- Characterize and quantify the expected annual cumulative emissions due to construction and operation of the mine and ancillary facilities, and the pipeline using CO2-equivalent as a metric for comparing the different types of GHG emitted over the life of the project, including post mine reclamation and closure;

- Describe the link between GHG and climate change, and the potential impacts of climate change;
- Consider impacts of climate change on vulnerable communities, such as Tribal and Alaska native communities;
- Discuss options for minimizing project related emissions, including consideration of mitigation measures and reasonable alternatives.

Cumulative Impacts

- Evaluate the proposed project impacts along with other past, present, and reasonably forseeable future projects and actions, and considering their cumulative impacts in their entirety;
- Identify the current condition of the resource as a measure of past impacts. For example, the percentage of species habitat lost to date;
- Identify the trend in the condition of the resource as a measure of present impacts. For example, the health of the resources is improving, declining, or in stasis;
- Identify the future condition of the resource based on an analysis of the cumulative impacts of reasonably forseeable projects or actions added to existing conditions and current trends. For example, what will the future condition of the watershed be?;
- Assess the cumulative impacts contribution of the proposed alternatives to the long-term health of the resource, and provide a specific measure for the projected impact from the proposed alternatives;
- Identify opportunities to avoid and minimize impacts, including working with other entities;
- Identify and evaluate existing, and abandoned mining projects and mining claims in the region;
- North of Tuluksak are large numbers of placer mines over the years;
- Contaminants associated with the Red Devil Mine upriver from the proposed project;
- Proposed future projects – Chikuminuk Lake Hydroproject (Nuvista Light and Electric), road between the Yukon River and Kuskokwim River, Susitna Watana Hydroproject, etc.

Mitigation and Monitoring

- CEQ guidance on the Appropriate Use of Mitigation and Monitoring ;
- Ensure mitigation commitments are implemented;
- Monitor effectiveness of mitigation commitments;
- Remedy failed mitigation;
- Involve the public in mitigation planning.

Consultation with Federally-Recognized Tribal Governments

EO 13175 Consultation and Coordination with Indian Tribal Governments (November 9, 2000)

Tribal Consultation Plan

- Have Tribes review and provide comments and provide concurrence with the Plan.

Consultation Process

- Tribal consultation and coordination should be open and occur throughout the EIS process;
- Include technical exchange of information regarding the project;
- Notify Tribes of the key decision points in the process;
- EPA would like to be more engaged in assisting the Corps in Tribal Consultation.

Traditional Ecological Knowledge

- Work closely with the community in the Region to identify special habitat areas, current/historical traditional uses – cultural, subsistence, hunting, fishing, harvesting, trapping, recreation, etc. and way of life;
- Kuskokwim Watershed Council could provide expertise for the TEK studies.

Environmental Justice and Public Participation

- E.O. 12898 Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (1994);
- Encourage meaningful engagement and participation by the community, particularly communicating in their native Yup'ik language of the region;
- EJ analysis should be conducted in consultation and coordination with communities;
- Provide more frequent opportunities to involve the public (between the Scoping and the Draft EIS stage);
- Disseminate fact sheets on technical aspects of the project;
- Conduct workshops on various subjects that would bring in the TEK and local knowledge of the people of this region. (e.g., information to help shape the 106 process, the emergency response planning, characterizing impacts from potential failure scenarios, impacts to subsistence resources, timing of the subsistence calendar and any special habitat areas for wildlife). This workshop could be hosted in various regional hub communities or Anchorage;
- Develop mitigation measures and agreements to minize impacts to EJ communities;
- Agreements should be developed between the project proponent and the EJ communities.

Health Risk or Impact Analysis

Screening Analysis

- Complete screening analysis to determine which aspects of human health (including, but not limited to public, environmental, mental, social, cultural health, etc.) could be impacted;
- Consider historical impacts to health and overall cultural well-being;
- Identify human health exposure pathways related to environmental impacts and subsistence resource.
- Identify potential contaminants that may persist and bioaccumlate in the environment and up the food chain (e.g., consumption of berries and drinking water).

Scope of the Health Assessment in the EIS

Data Collection

Methods and Tools

Children's Health and Safety

- E.O. 13045 Protection of Children from Environmental Health Risks and Safety Risks (April 23, 1997);
- DEIS assess children's potential exposures and susceptibilities to the pollutants of concern;
- Identify pollutants and sources of concern;
- Exposure Assessment – air, water, subsistence foods, noise, etc.;
- Baseline health conditions.

Historical and Cultural Resources

- Section 106 National Historic Preservation Act of 1966;
- Consultation with tribal governments;
- Evaluate sacred sites; traditional cultural properties or landscapes; hunting, fishing, gathering areas; access to traditional and current hunting, fishing, and gathering areas and species; historical travel and migration routes; and historic properties, districts or landscapes;
- Conduct 106 consultation process concurrent with the EIS process. 106 process should be completed prior to issuing the Record of Decision (ROD).